

C A L T E C H

L I B R A R Y

S Y S T E M



<http://resolver.caltech.edu/CaltechLIB:SPOiti05>

Caltech CODA

C A L T E C H

- <http://coda.caltech.edu>
- CODA: Collection of Digital Archives
- Caltech Scholarly Communication
- 15 Production Archives
- 3102 Records
- Theses, technical reports, conference proceedings, oral histories, refereed articles

S Y S T E M

CALTECH





Caltech Computer Science Technical Reports

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Main

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Search records:

Search full text:

neural network

Search

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Results for Simple Search

[Refine search](#) | [New search](#)

Full Text/Title/Abstract/Authors/Creators/Date matches all of "neural network". Results ordered by title.
Displaying results **1** to **10** of **10**. Search time: 0s.

[Index last built at: Sun Apr 10 00:37:48 PDT 2005]

Fleischer, Kurt W.

[A Multiple-Mechanism Developmental Model for Defining Self-Organizing Geometric Structures](#)

01 January 1995, Monograph. [Deposited 15 May 2001]

Kirk, David B.

[Accurate and Precise Computation using Analog VLSI, with Applications to Computer Graphics and Neural Networks](#)

01 January 1993, Monograph. [Deposited 14 May 2001]

Platt, John C. and Barr, Alan H.

[Constrained Differential Optimization for Neural Networks](#)

01 January 1988, Monograph. [Deposited 24 April 2001]

Platt, John

[Constrained methods for Neural Networks and Computer Graphics](#)

01 January 1989, Monograph. [Deposited 25 April 2001]

A Multiple-Mechanism Developmental Model for Defining Self-Organizing Geometric Structures

Fleischer, Kurt W. (1995) *A Multiple-Mechanism Developmental Model for Defining Self-Organizing Geometric Structures*. Technical Report. California Institute of Technology. [CaltechCSTR: 1995.cs-tr-95-14]

Full text available as:



[Postscript](#) - Requires a viewer, such as GhostView

Abstract

This thesis introduces a model of multicellular development. The model combines elements of the chemical, cell lineage, and mechanical models of morphogenesis pioneered by Turing, Lindenmayer, and Odell, respectively. The internal state of each cell in the model is represented by a time-varying state vector that is updated by a differential equation. The differential equation is formulated as a sum of contributions from different sources, describing gene transcription, kinetics, and cell metabolism. Each term in the differential equation is multiplied by a conditional expression that models regulatory processes specific to the process described by that term. The resulting model has a broader range of fundamental mechanisms than other developmental models. Since gene transcription is included, the model can represent the genetic orchestration of a developmental process involving multiple mechanisms. We show that a computational implementation of the model represents a wide range of biologically relevant phenomena in two and three dimensions. This is illustrated by a diverse collection

Browse by Person

Please select a value to browse from the list below.

- [Acosta-A-J \(45\)](#)
- [Adkins-D-R \(1\)](#)
- [Ahn-H \(3\)](#)
- [Arakeri-V-H \(1\)](#)
- [Arndt-N \(6\)](#)
- [Babcock-C-D \(2\)](#)
- [Bhattacharyya-A \(3\)](#)
- [Bircumshaw-B-L \(3\)](#)
- [Bloch-R \(1\)](#)
- [Braisted-D-M \(4\)](#)
- [Brennen-C-E \(193\)](#)
- [Brennen-D \(1\)](#)
- [Brokaw-C-J \(2\)](#)
- [Campbell-C-S \(4\)](#)
- [Caughey-T-K \(25\)](#)
- [Ceccio-S-L \(8\)](#)
- [Chai-H \(1\)](#)
- [Chamieh-D-S \(3\)](#)
- [Chaney-K \(1\)](#)
- [Chasiotis-I \(1\)](#)
- [Colonius-T-E \(10\)](#)
- [Creech-J \(2\)](#)
- [Del-Valle-J \(1\)](#)
- [Divino-V \(2\)](#)

Caltech Collection of Open Digital Archives (CODA)

Archive Identifier	Description
CaltechAUTHORS stats	Caltech Authors' Self-Archive
CaltechBOOK stats	Books by Caltech Authors
CaltechCACR stats	Caltech Center for Advanced Computing Research
CaltechCDSTR stats	Caltech Control and Dynamical Systems Technical Reports
CaltechCSTR stats	Caltech Computer Science Technical Reports
CaltechEERL stats	Caltech Earthquake Engineering Research Laboratory Technical Reports
CaltechETD stats	Caltech Electronic Theses and Dissertations
CaltechGALCITFM stats	Caltech Graduate Aeronautical Laboratories (Fluid Mechanics) Technical Reports
CaltechJSNC stats	11th Joint Symposium on Neural Computation
CaltechKHR stats	W. M. Keck Laboratory of Hydraulics and Water Resources Technical Reports
CaltechLESSGS stats	Caltech Large-Eddy Simulation and Subgrid-Scale Modeling for Turbulent Mixing and Reactive Flows
CaltechLIB stats	Caltech Library System Papers and Publications
CaltechOH stats	Caltech Oral Histories

We Want Federation

- Search all archives at once (federated search)
- Browse all authors, and all records from a given author, in one place (electronic CV)



OAI-PMH Can Help

- Open Archives Initiative – Protocol for Metadata Harvesting
- <http://www.openarchives.org>
- Two Tier Model
 - Data Providers
 - Service Providers
- Service Providers harvest metadata from Data Providers via the OAI Protocol



Data Providers

C A L T E C H

- Expose Metadata
- All records must be described by a minimal set of metadata:
 - Author
 - Title
 - Abstract
 - Submission date
 - URL to Record
 - Unique Identifier

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Service Providers

- Metadata is routinely harvested and stored in a central database
- The central database is the foundation for federated services
- DP9, Celestial, Google Scholar





DP9- An OAI Gateway Service for Web Crawlers



[Home](#) [About](#)

Repository Name: Caltech Computer Science Technical Reports

The crawler may issue requests to each URL below to collect the metadata.

List Identifiers	
OAI Identifier	Link to OAI_DC Metadata
oai:caltechcstr.library.caltech.edu:109	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:109
oai:caltechcstr.library.caltech.edu:110	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:110
oai:caltechcstr.library.caltech.edu:111	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:111
oai:caltechcstr.library.caltech.edu:112	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:112
oai:caltechcstr.library.caltech.edu:113	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:113
oai:caltechcstr.library.caltech.edu:114	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:114
oai:caltechcstr.library.caltech.edu:115	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:115
oai:caltechcstr.library.caltech.edu:116	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:116
oai:caltechcstr.library.caltech.edu:117	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:117
oai:caltechcstr.library.caltech.edu:118	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:118
oai:caltechcstr.library.caltech.edu:120	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:120
oai:caltechcstr.library.caltech.edu:121	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:121
oai:caltechcstr.library.caltech.edu:122	/dp9/getrecord/oai_dc/CaltechCSTR.OAI/oai:caltechcstr.library.caltech.edu:122

Celestial - Status

This page lists the repositories mirrored by this install of Celestial using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). To retrieve the list of repositories available here in XML use ListFriends.

The administrator for this site can be contacted at <tdb01r AT ecs DOT soton DOT ac DOT uk >.

No successful harvest yet Harvest in progress Permanent failure

Identifier	baseURL	Metadata Namespace	Harvest Method	Records	La
MultiMedia DataBase 324	/perl/oai		ListRecords	0	no
unknown 294	http://techreports.larc.nasa.gov/ltrs/oa...		ListRecords	0	no
unknown 297	http://www.musikwissenschaft.tu-berlin.d...		ListRecords	0	no
unknown 299	http://www.smu.edu/culperl/oai2		ListRecords	0	no
unknown 301	http://www.w3.org/TR/html4/strict.dtd		ListRecords	0	no
11th Joint Symposium on Neural Computation 243	http://jsnc.library.caltech.edu/perl/oai...	oai_dc	ListRecords	30	no
@rchiveSIC : Sciences de l'Information et de la Communication 12	http://archivesic.ccsd.cnrs.fr/perl/oai2...	ccsd_tel	ListRecords	529	no
@rchiveSIC : Sciences de l'Information et de la Communication 12	http://archivesic.ccsd.cnrs.fr/perl/oai2...	oai_dc	ListRecords	581	no
Academic Archive On-line 250	http://www.diva-portal.org/oai/OAI	marc21	ListRecords	3529	no
Academic Archive On-line 250	http://www.diva-portal.org/oai/OAI	oai_dc	ListRecords	3529	no
Aerosol Science and Technology 4	http://aerosolscitech.library.caltech.ed...	oai_dc	ListRecords	1	06,
ahousat.library.ubc.ca:80.UBC Electronic Thesis and Dissertation 196	http://ahousat.library.ubc.ca:80/ETD-db/...	oai_dc	ListRecords	8	no



neural networks caltechcstr

Search

[Advanced Scholar Search](#)

[Scholar Preferences](#)

[Scholar Help](#)

Scholar

Results 1 - 5 of 5 for [neural networks](#) caltechcstr. (0.06 seconds)

[\[PS\] ... Results Regarding the Estimation of Densities and Random Variate Generation Using **Neural Networks**](#)

M Magdon-Ismail, A Atiya - [View as HTML](#) - [Web Search](#)

... Variate Generation Using **Neural Networks** Malik Magdon-Ismail Dept. ... amir@work.caltech.edu **CaltechCSTR**/2000.005 Submission Date: September 8, 2000. Abstract ...
[cs.rpi.edu](#) - [caltechcstr.library.caltech.edu](#)

[An Integrated Digital Library Server with OAI and Self-Organizing Capabilities](#)

H Kim, CY Choo, SS Chen - [Cited by 1](#) - [Web Search](#)

... Number of Harvested Records **caltechcstr** Caltech Computer Science Techni- cal Reports 358 ... In IEEE Transac- tions on **Neural Networks**, Vol. ...
[Proceedings of the 7th European Conference on Research and ...](#) - [springerlink.com](#) - [ifs.tuwien.ac.at](#) - [phoenix.lite.cise.ufl.edu](#)

[Searching and Mining among DL Services](#)

H Kim, CY Choo, SS Chen - [View as HTML](#) - [Web Search](#)

... One of the most prominent **neural networks** for cluster analysis is the Self-Organizing Map [4, 5, 9, 14, 16, 26, 30]. ... IEEE Transactions on **Neural Networks**, Vol. ...
[phoenix.lite.cise.ufl.edu](#)

[CGBoost: Conjugate Gradient in Function Space](#)

L Li, YS Abu-Mostafa, A Pratap - [View as HTML](#) - [Web Search](#)

... 2003 <http://resolver.caltech.edu/CaltechCSTR:2003.007> ... a computer program that contains several predefined data models, such as **neural networks**, support vector ...
[Computer Science Technical Report CaltechCSTR, 2003](#) - [ling.li](#) - [caltechcstr.library.caltech.edu](#) - [cs.caltech.edu](#) - [ling.li](#) - [all 5 versions »](#)

Federation using OAI

- A collection of records must be described with a common, minimal set of metadata
- Data Provider tools expose the metadata over http using the OAI-PMH
- Service Providers use OAI-PMH to harvest Data Providers, index the content and produce a new service (such as searching, or act as a Data Provider themselves)



Data Provider Requirements

- Expose metadata by responding to simple commands. Respond using xml over http.
 - Identify
 - GetRecord
 - ListIdentifiers
 - ListMetadataFormats
 - ListRecords
 - ListSets



OAI Repository Explorer

- Helps evaluate and validate a Data Provider implementation
- Provide an OAI Base URL and send it queries.
- Example Base URL:
<http://caltechctr.library.caltech.edu/perl/oai2>



Data Provider Tools

- <http://www.openarchives.org/tools/tools.html>
- Currently 26 tools freely available to help implement OAI
- Most implementation burden placed on Service Providers, not Data Providers



Eprints at Caltech

- Eprints.org is a scholarly communication archiving software package
- It is also an OAI Data Provider
- All Caltech CODA archives are Data Providers
- Most run on eprints.org; Theses runs on VT ETDdb



The Problem

- Each Service Provider must harvest each of our 15 archives individually
- This discourages participation
- It is unnecessary, provided we can build a local Service Provider (union catalog of all of CODA)



The Solution

- Design Caltech CODA Union Catalog
- Locally harvest each archive into a central database using OAI-PMH
- Implement this database as an OAI Data Provider
- Instruct all outside harvesters to use this one Data Provider rather than the 15 individually



EPrints.org as SP

- Build a harvesting routine to feed metadata into another instance of eprints.org using OAI-PMH
- Eprints.org does the rest
 - browse screens
 - search interface
 - Data Provider



End Result

- The Caltech Union Catalog will contain all 3100 CODA records in one database
- The metadata describing the records will be only the oai_dc subset (author, title, abstract, unique id, URL to target)
- Each record in union catalog will contain a link back to the full record in the harvested archive



End Result

- There will be one place for all harvesters to obtain Caltech records, instead of 15
- Use eprints to provide the local federated search interface across all our archives
- Author browse pages (like a CV)
- Centralized RSS (eprints.org supports this)
- Centralized access statistics



Challenges

- Centralized Browse by Author requires author name identifier (authority)
- Implement OAI harvester to feed the Union Catalog (based on eprints.org)
- Customize eprints.org to import records provided by this harvester



Summary

- Using OAI-PMH for federated searching requires three steps:
 - Define a minimal metadata set for all records
 - Wrap a Data Provider service around each collection of records to expose metadata
 - Harvest metadata centrally, then produce a service (such as search and browse)
- Skip step three if you're satisfied with existing OAI Service Providers (DP9, Google, Celestial, etc.)



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S Y S T E M



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